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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

CHERVINSKY, BORIS LEO

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2835

DATE MAILED: 03/20/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,686

Applicant(s)

NAKAMURA, SATOSHI

Examiner

Boris L. Chervinsky

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-7,10-13 and 15-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-7,10-13 and 15-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. Figures 7 and 8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The disclosure is objected to because of the following informalities: the substitute specification is replete with improper punctuations such as on Page 8, lines 12 and 13 or Page 9, lines 23 and 24.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2835

5. Claims 4-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claims 4 and 5 recite the limitation "said plated layer" in lines 1-2. There is insufficient antecedent basis for this limitation in the claims.
7. Claim 6 is vague and indefinite because the term "attaching plate" lacks an antecedent basis with the specification terminology therefore cannot be definitively matched with the specific element shown in the drawings and discussed in the specification.
8. Claim 6 is written in narrative form and does not positively set forth the attaching plate as part of the structure, the recitation in the claim that it is able to be brought into contact with the circuit board on a rear side and on a front side does not place it definitively in structural relationship with other elements of the structure.
9. Claim 7 is inherently vague and indefinite because it depends on claim 6.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2835

11. Claims 1, 4, 5, 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christopher et al. in view of Hunninghaus et al.

Christopher et al. disclose a circuit board 201 having an electronic components 119, 225 provided with a heat radiating plate (not numbered) and being mounted on its surface by soldering, heat radiating means 107 soldered to the underside of the circuit board, a first and second heat radiating patterns provided on the upper side of the circuit board and the underside of the circuit board and the heat radiating patterns are connected by plated through holes 205 and 229 (claim 10), the heat radiating patterns constitute circuits formed on the circuit board (claims 11, 12). Christopher discloses the claimed invention except the second radiating pattern having larger area than the first radiating pattern. Hunninghaus discloses the circuit board having heat-radiating pattern 44 on upper side and underside of the board and the underside radiating pattern having larger area than the upper side. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have the second radiating pattern with larger area as disclosed by Hunninghaus et al. in the structure disclosed by Christopher et al. to have larger contact area with the heat radiating plate for sufficient heat dissipation.

Regarding to claims 4 and 5, Christopher et al. disclose the claimed invention except for the material of plated layer containing tin or nickel. It would have been obvious to one having ordinary skill in the art at the time the invention was made to , since it has been held to be within the general skill of a worker in the art to select a known material

Art Unit: 2835

on the basis of its suitability for the intended use as a matter of obvious design choice.

In re Leshin, 125 USPQ 416.

Claims 6, 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christopher et al. in view of Hunninghaus et al., as applied to claim 1, and further in view of Miyagi et al.

Christopher et al. disclose the claimed invention except the heat radiating means having a plurality of fins. Miyagi et al. disclose the heat radiating means attached to the underside of the circuit board and having a plurality of fins. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have multiple fins attached to the heat radiating means as disclosed by Miyagi et al. in the structure disclosed by Christopher et al. for better heat dissipation.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 15, 20-22 are rejected under 35 U.S.C. 102(a) as being anticipated by Christopher et al.

Christopher et al. disclose a circuit board 201 having an electronic components 119, 225 provided with a heat radiating plate (not numbered) and being mounted on its

Art Unit: 2835

surface, a first heat radiating pattern formed on the upper surface of the circuit board and the heat radiating plate is soldered to the first heat radiating pattern, a second heat radiating pattern provided on the underside of the circuit board corresponding to the electronic component, a plated layer 113 is soldered to the second heat radiating pattern and heat radiating means 107 and 278 mounted on the rear surface of the circuit board 201, and the heat radiating patterns are connected by plated through holes 205 and 229 (claim 22), the heat radiating patterns constitute circuits formed on the circuit board (claims 20, 21).

Claim Rejections - 35 USC § 103

1. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christopher et al.

Christopher et al. disclose the claimed invention, as applied to claim 15, except for the material of plated layer containing tin or nickel. It would have been obvious to one having ordinary skill in the art at the time the invention was made to , since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

2. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christopher et al. in view of Miyagi et al.

Christopher et al. disclose the claimed invention except the heat radiating means having a plurality of fins. Miyagi et al. disclose the heat radiating means attached to the

Art Unit: 2835

underside of the circuit board and having a plurality of fins. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have multiple fins attached to the heat radiating means as disclosed by Miyagi et al. in the structure disclosed by Christopher et al. for better heat dissipation.

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris L. Chervinsky whose telephone number is 703-308-5429. The examiner can normally be reached on 8-5.

Art Unit: 2835

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on 703-308-4815. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-4184 for regular communications and 703-305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-5115.

BORIS CHERVINSKY
PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Boris L. Chervinsky", written over a horizontal line.

March 19, 2002